Bonneville Power Administration
Fish and Wildlife Program FY99 Proposal Form

Section 1. General administrative information

Restore Anadromous Fish Habitat in the Nichols Canyon subwatershed of the Big Canyon Creek watershed

Bonneville project number, if an ongoing project 9060

Business name of agency, institution or organization requesting funding
Clearwater Focus Watershed Program - Idaho Soil Conservation Commission

Business acronym (if appropriate) CFWP-ISCC

Proposal contact person or principal investigator:

Name	Janet Hohle, Co-Coordinator
Mailing Address	220 East 5TH Street
City, ST Zip	Moscow, ID 83843
Phone	(208) 882-0507
Fax	(208) 883-4239
Email address	

Subcontractors.

Organization	Mailing Address	City, ST Zip	Contact Name
Individual Landowners and/or Operators	Nez Perce County, Idaho		Various
Nez Perce Soil and Water Conservation District	112 36th St North, Suite B	Lewiston, ID 83501	Cheryl Hart
Natural Resources Conservation Service	112 36th St North, Suite B	Lewiston, ID 83501	Lynn Rasmussen

NPPC Program Measure Number(s) which this project addresses.

NPPC Fish and Wildlife Program Sections: 3.1, 4.1, 7.6, 7.7, 7.8

NMFS Biological Opinion Number(s) which this project addresses.

The Clearwater and Nez Perce National Forests have completed a biological assessment for activities affecting steelhead trout. The National Marine Fisheries Service is presently preparing the Biological Opinion, which is scheduled to be completed in January, 1998.

Other planning document references.

In addition to being a Clearwater Focus Watershed Program proposal which is co-coordinated between the Idaho Soil Conservation Commission and the Nez Perce Tribe Fisheries Department, the following documents endorse fish habitat restoration in Big Canyon Creek.

Fuller, R.K., Kucera, P.A., and Johnson, D.B. (1985). A biological and physical inventory of the streams within the Nez Perce Reservation. Nez Perce Tribe Fisheries. DOE/BP DE-A179-83BP10068, BPA, Portland.

Idaho Division of Environmental Quality and Idaho Soil Conservation Commission. 1991. Idaho agricultural pollution abatement plan.

Nez Perce Soil and Water Conservation District. 1995. Idaho State agricultural water quality program proposal for Big Canyon.

Nez Perce Tribe and Idaho Department of Fish and Game. (1990). Clearwater River subbasin salmon and steelhead production plan. BPA contract.

Subbasin.

CLEARWATER RIVER SUBBASIN

Short description.

Restore anadromous fish habitat affected by upland agricultural land uses through the implementation of best management practices on private lands located within the exterior boundaries of the Nez Perce Indian Reservation.

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
X	Anadromous fish		Construction	X	Watershed
*	Resident fish	X	O & M		Biodiversity/genetics
*	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research	*	Ecosystems
	Climate	*	Monitoring/eval.		Flow/survival
	Other	*	Resource mgmt		Fish disease
			Planning/admin.		Supplementation

_____	Enforcement	*	Wildlife habitat en-
	Acquisitions		hancement/restorati
_____			on

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship
9608600	IDAHO STATE SOIL CONSERVATION COMMISSION FOCUS WATERSHED PROGRAM	FOCUS PROGRAM IS CO-COORDINATED BETWEEN IDAHO STATE AND NEZ PERCE TRIBE
970600	NEZ PERCE TRIBAL FISHERIES DEPARTMENT FOCUS WATERSHED PROGRAM	FOCUS PROGRAM IS CO-COORDINATED BETWEEN IDAHO STATE AND NEZ PERCE TRIBE
9607700	CLEARWATER FOCUS PROGRAM ON-THE-GROUND PROJECTS	PROJECTS ARE THE RESULT OF WATERSHED PROGRAM CO-COORDINATION

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Update and finalize program details.	a	Review cost share rates and methods of cost-sharing.
		b	Review technical standards.
2	Contact the approximately 14 landowners/operators to initiate participation in project. Initial contact has been made.	a	Publish announcements, and make individual contact with operators/landowners.
		b	Organize group meetings.
3	Prepare long-term contracts with operators.	a	Conduct on-site inspection of properties.
		b	Final contracts and/or develop implementation alternatives.
4	Assist operators with installation of BMPs	a	Conduct on-site assistance with design and layout.
		b	Conduct implementation inspections.
5	Review implementation	a	Inspect implementation.
		b	Document inspection.
6	Reporting	a	Quarterly and Final reports.

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	10/1998	12/1998	5
2	11/1998	05/1999	5
3	11/1998	09/1999	40
4	03/1999	09/1999	30
5	10/1998	09/1999	10
6	10/1998	09/1999	10
		Total	100%

Schedule constraints.

The first constraint to this project would be the timing of funding approval because the significant portion of implementation requires working access to the subwatershed by the landowner/operator subcontractors. A second constraint, related to the first, would be availability of landowner/operator supplied equipment and labor to implement contracts relative to project approval and farming schedule needs.

Completion date.

2003

Section 5. Budget

FY98 budget by line item

Item	Note	FY99
Personnel	Temporary Hire-Conservationist, (2080 hours)	$ 33,280
Fringe benefits		11,315
Supplies, materials, non-expendable property		2,500
Operations & maintenance	Vehicle lease/operation	4,500
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		
Travel		
Indirect costs	@10%	5,160
Subcontracts		125,000
Other		
TOTAL		$181,755

Outyear costs

Outyear costs	FY2000	FY01	FY02	FY03
Total budget	150,000	150,000	150,000	150,000
O&M as % of total	0	0	0	0

Section 6. Abstract

The presence of overyearling rainbow-steelhead trout in the Nichols Canyon Creek subwatershed of the Big Canyon Creek watershed within the Clearwater River subbasin has been documented by Murphy and Metsker, 1962, Fuller, Kucera, and Johnson, 1985, and Kucera and Johnson, 1986. The Fuller et al report also noted that the creek had low summer stream flow, lack of instream cover, nitrate problems in the upper section, annual stream flow variation in lower stretches, and siltation, although lower stretches had some sections of good riparian habitat. The Idaho State Section 303(d) (Clean Water Act) stream list includes Big Canyon Creek with the following parameters of concern: sediment, nutrients, dissolved oxygen, flow, and habitat alteration.

The Big Canyon Creek watershed is located within the exterior boundaries of the Nez Perce Indian Reservation.

The major land use within the subwatershed is agriculture occurring on timbered, cut over forest soils. The purpose of actions presented in this proposal is to improve current agricultural practices through the implementaion of best management practices (BMPs), coordinated through efforts by private landowners/operators, the Nez Perce Soil and Water Conservation District (SWCD), Idaho Soil Conservation Commission (ISCC), and Natural Resources Conservation Service (NRCS) personnel. The proposed BMPs are techniques endorsed by the Bonneville Power Administration (1997), NRCS (1996), and the Idaho Agricultural Pollution Abatement Plan (1991).

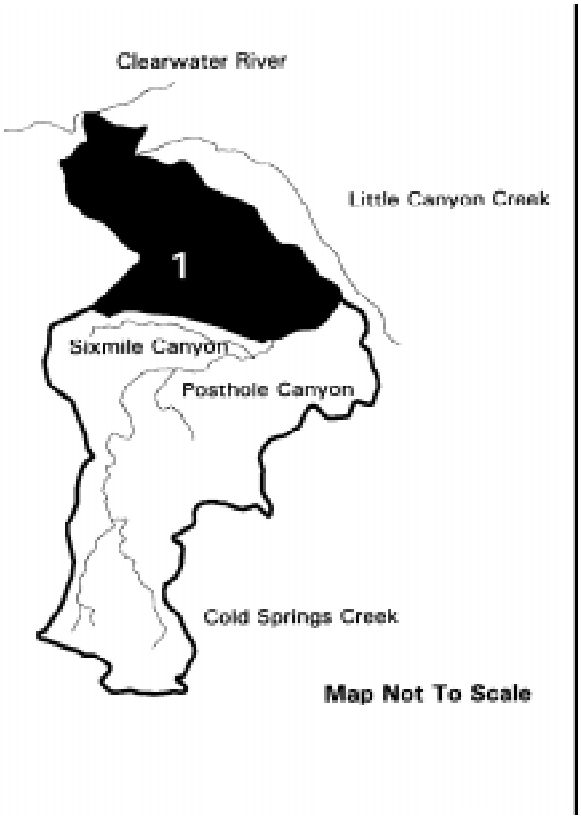
Expected results from the proposed project include: decreased sediment delivery to Nichols Canyon Creek, improved rangeland conditions, and improved riparian habitat. The level of success will be evaluated using the NRCS prediction model for sediment delivery and field inspections to evaluate compliance with conservation plans and BMP objectives.

Section 7. Project description

a. Technical and/or scientific background.

Figure 1.Nichols Canyon Creek (no.1) Subwatershed (source: Big Canyon Water Quality Project, Nez Perce County Soil and Water Conservation District, 1995.)

The Big Canyon Creek watershed is located in Nez Perce, Idaho. The watershed begins at Mason Butte, Idaho between the farming communities of Craigmont and Winchester. Flowing in a northerly direction through the Camas



Prairie for 31 miles, Big Canyon Creek drains a watershed of approximately 74,000 acres. The watershed is divided into three subwatersheds beginning in the headwaters with Cold Springs Creek, Sixmile Canyon Creek, and at the mouth, Nichols Canyon Creek, which flows into the Clearwater River.

The presence of steelhead in Big Canyon Creek was first documented in Murphy and Metsker (1962). Sampling of overyearling rainbow-steelhead trout was documented in Fuller, Kucera, and Johnson, “The five highest densities of overyearling rainbow-steelhead were found in Little Canyon, Cottonwood, Big Canyon, Middle Fork Potlatch, Little Boulder, and Jacks Creeks.” (1985, p5) Kucera and Johnson reported, “The Big Canyon Creek system currently, is one of the top steelhead producing streams within the Nez Perce Reservation.” (1986, p156). Cochnauer reported that A-run steelhead move into the Big Canyon Creek watershed in January or February and spawn in March or April (1991).

Nevertheless, fish density and distribution is low in the watershed. Fuller et al reported the Big Canyon Creek system problem to be, “low summer stream flow; high summer temperatures; low instream cover; annual stream flow variation.” (1985, p97) The 1993 Idaho Agricultural Pollution Abatement Plan identified the Big Canyon Creek watershed as a *nonpoint source water quality priority.* The Idaho Section 303(d) (Clean Water Act) stream list includes Big

Canyon Creek with the following parameters of concern: sediment, nutrients, thermal modification, flow, and habitat alterations. (DEQ and EPA, 1997) The Nez Perce Tribe conducted a beneficial use reconnaissance program survey on Big Canyon Creek during the summer of 1997, the results of the survey are not yet available.

An evaluation of the ground and surface water relationship conducted by Inter-Fluve, Inc., in the Sixmile Creek subwatershed for the Bureau of Land Management (BLM) suggested that restoration efforts be spent downstream (Nichols Canyon subwatershed) on private lands, where perennial flow and steelhead are frequently observed. (In Nez Perce Soil and Water Conservation District, Appendix L, 1995) The BLM however, does not manage lands in the lower subwatershed.

The Nez Perce Soil and Water Conservation District identified sources of pollutants to the creek in the Big Canyon Water Quality Project Final Planning Report, “Many of the pollutants contributing to the water quality problems in Big Canyon Creek originate from agricultural sources, forestry sources, urban sources, and grazing activities in riparian areas adjacent to cropland, pastureland, rangeland, and forestland.” (1995, p28)

This proposal is specifically for privately owned lands within the 14,486 acres of the Nichols Canyon subwatershed. Land uses within the subwatershed are agricultural and include 84% cropland (12,217 acres), 10% forestland (1,519 acres), 4% rangeland (724 acres), and 2% patureland (26 acres). The forestland occurs mostly on very steep northeast facing canyon slopes. Scattered timber stands may be found on the canyon floor and interspersed throughout the cropland. Approximately 50% of the stand was logged during 1994-1996. Rangeland occurs on the canyon bottom and on the steep canyon walls. Starthistle is the most prevalent weed species. Cropland occurs on slopes varying from 0 to 25%; most cropland occurs on gently rolling topography.

Of the 14,486 acres, 12,000 were identified in1995 as critical based upon the following criteria which were established jointly by landowner/operators, Nez Perce Soil and Water Conservation District, and the Natural Resources Conservation Service (Nez Perce SWCD, 1995):

1) Acres with sheet and rill erosion that exceeds a tons soil per acre loss level beyond which soil productivity is decreased.

2) Acres with gully erosion.

3) Riparian acres subject to disturbance.

Fish habitat condition and availability within Big Canyon Creek have been affected by upland land uses. The character of cut over soils and steep terrain have contributed to movement of sediment and soil bound pollutants into the lower watershed and creek waterway.

Increased sediment delivery to a stream can increase cobble embeddedness, decrease water flow in gravel, and reduce dissolved oxygen content. (Armour, Duff, and Elmore, 1991; Bjornn and Reiser, 1991) Grazing practices in the canyon and forestlands have affected vegetation cover and soil compaction within riparian areas of Big Canyon Creek. Consequently, diminished vegetation cover has contributed to reduced riparian sediment filtration, cover, and bank stabilization. (Armour et al, 1991; Elmore and Beschta, 1987) Water storage capability and infiltration has been affected by increased soil compaction. (Fleischner, 1994; Kauffman and Kruege, 1984)

The Nez Perce Soil Water and Conservation District and the National Resources Conservation Service are currently facilitating landowner/operator implementation of best management practices in the two subwatersheds upstream from the Nichols Canyon subwatershed. This program was funded through the Idaho State Agricultural Water Quality Program, funds from which have been fully committed and are not available to new projects. The logical extension of these efforts is treatment of the lower subwatershed.

Entering the Nichols Canyon subwatershed is the Little Canyon Creek subwatershed, the main tributary to the Big Canyon Creek watershed. The Little Canyon Creek subwatershed is also proposed for program funding from Bonneville Power Administration in Fiscal Year 1999.

b. Proposal objectives.

This proposal is for a watershed restoration project in the Nichols Canyon Creek subwatershed of the Big Canyon Creek watershed, a major tributary of the Clearwater River subbasin.

Objective 1, Tasks a and b: Cost estimates for the implementation of best management practices for agricultural land uses presented in this proposal were first made in 1995 as was the original landowner/operator list. These will be updated to more accurately plan for the most efficient distribution and use of allocated funding. Outcome: Revised cost estimate for BMPs and landowner/operator index.

Objective 2, Tasks a and b: Organize and announce availability of contract funding to landowners/operators in affected area. Coordinate group meetings to present orientation of program needs and requirements. Outcome: Successful contact with each eligible landowner/operator in project area.

Objective 3, Task a and b: Conduct on-site inspections to collect information to complete implementation plans for BMPs on specific treatment units. Develop final contracts for landowners/operators or, where indicated, develop alternative treatment plans for units. Outcome: Six BMP contracts.

Objective 4, Tasks a: Conduct on-site assistance with design and layout of BMP treatments. Outcome: Six on-site follow-ups.

Objective 5, Tasks a and b: After construction or installation, conduct implementation inspection (monitoring). Document inspection of BMP implementation relative to planned treatment. Outcome: Six inspections with documentation.

Objective 6, Task a: Prepare and submit three quarterly and one final summary report that provide information on work completed, difficulties encountered, measurable success, anticipated modifications for the next quarter. Outcome: Three quarterly reports and one annual summary report.

c. Rationale and significance to Regional Programs.

Successful implementation of this proposal will initiate recommendations and plans listed in Section 1 of this document. The proposed project will also initiate the Clearwater Focus Watershed Program work on private lands within the Clearwater River subbasin. This is particularly significant because at least 34% of the subbasin acreage is held in private ownership. In addition, the proposed work would contribute toward improved water quality and fisheries habitat in the Clearwater River mainstem as the Big Canyon watershed is a major tributary.

The Nichols Canyon Creek subwatershed project is an effort coordinated between local landowners/operators, federal (NRCS), state (ISCC), and local (SWCD) agencies. As such, this proposal reflects Section 3.1 of the FWP.

This proposal incorporates the six principles for rebuilding salmon and steelhead as stated in Section 4.1A of the FWP.

The proposal for the Nichols Canyon Creek subwatershed includes activities that are coordinated on a watershed basis, involving effort and cost sharing by individuals, federal, state, and local agencies, to achieve habitat objectives as defined by the FWP. In total, the proposal is a product of the FWP habitat objectives, policies, and goal (Section 7.6 FWP).

This proposal is a component of the Idaho State and Nez Perce Tribe co-coordinated Clearwater Focus Watershed Program, which is a subbasin effort to coordinate habitat protection, enhancement and restoration efforts. The program and this proposal are a product of Section 7.7 of the FWP which specifically calls for cooperative fisheries habitat protection and improvement involving private landowners.

Fisheries habitat improvement is a goal of the Nichols Canyon Creek subwatershed. The proposed activities focus on upland uses that directly affect the quality and quantity of instream fisheries habitat and seek to control erosion and riparian habitat impact. Proposed actions will implement habitat improvements within the Nichols Canyon Creek subwatershed and Section 7.8 of the FWP.

d. Project history

This proposal is part of the ongoing Clearwater Focus Watershed Program, co-coordinated between Idaho State and the Nez Perce Tribe through sponsorship by the Idaho Soil Conservation Commission and the Nez Perce Tribe Fisheries Department. It proposes actions newly identified from the Clearwater Focus Watershed Program and is part of the beginning of activities on private lands that comprise approximately 34% of lands within the Clearwater River subbasin.

e. Methods.

The Nez Perce Soil and Water Conservation District will be the primary subcontractor for this proposal. The proposed subwatershed activities might require the hire of a temporary district conservationist to take on added SWCD work funded through this contract depending on the work load of the SWCD, ISCC, and NRCS personnel at the time of funding allocation.

Agricultural best management practices are voluntary actions taken by individual landowners and/or operators. The incentive to participate is the opportunity for project cost-sharing and the availability of technical assistance for implementation of a practice (e.g., pest, nutrient or pasture management techniques) or installation of structures (e.g., riparian fencing, sediment basin, ponds, grassed waterways, etc.). The reinforcement to continue a practice is the successful results BMPs usually demonstrate. This success reflects the extensive testing over time of BMP techniques and the ability to modify each with experienced technical assistance to meet site specific needs.

Implementation will occur through Nez Perce SWCD subcontracts with local landowners/operators.

Objectives 1 and 2 emphasize the most efficient and effective way to enlist voluntary participation in a program that may or may not include activities familiar to a landowner/operator. Initial contact was made during early planning.

Objectives 3 and 4 represent the heart of the proposed program (70%) by assisting landowners/operators with plans, designs, layout, and initiating BMPs that will decrease negative impacts to fisheries habitat and water quality while simultaneously benefitting agricultural interests. Assistance is provided directly and frequently on-site where action is to be implemented.

The best management practices proposed for implementation in the Nichols Canyon Creek subwatershed are endorsed by the following: Bonneville Power Administration, Watershed Management Program (Appendix A), Natural Resources Conservation Services, Field Office Technical Guide (BMPs), and the Idaho Agricultural Pollution Abatement Plan, BMPs. The following list includes specific practices as detailed in the NRCS Field Office Technical Guide.

Controlled Drainage, no. 335-1

Critical Area Planting, no. 342-1
Sediment Basin, no. 350-1
Fish Stream Improvement, no. 395-1
Grassed Waterway, no. 412-1
Nutrient Management, no. 590-1
Pest Management, no. 595-1

These BMPs will be implemented as detailed by the individual conservation plans developed in Objective 3, Tasks a and b, described in Section 4 of this document. Design layout and survey (where required) occurs during Objective 4, Task a. Implementation monitoring from on-site inspections will be conducted and documented during Objective 5, Tasks a and b. Maintenace of BMPs will be provided by the landowner/operator. Success of implementation will be evaluated by the NRCS sediment delivery model and evaluated and from on-site compliance inspections.

Expected results from the proposed project include: decreased sediment delivery from Nichols Canyon Creek to Big Canyon Creek, improved rangeland conditions, and improved riparian habitat.

f. Facilities and equipment.

Equipment needed to implement best management practices will be provided by landowner/operator subcontractors. Facilities needed by coordinating conservationist specialists will be provided by the SWCD and the NRCS office located in Lewiston, Idaho. Support facilities and assistance, will also be provided by the Clearwater Focus Watershed Program office.

g. References.

Rondorf, D.W., and K.F. Tiffan. 1997. Identification of the spawning, rearing and migratory requirements of fall chinook salmon in the Columbia River Basin. Annual Report 1995. DOE/BP-21078-5, Bonneville Power Administration, Portland, Oregon.

References

Armour, C.L., Duff, D.A., Elmore, W. 1991. The effects of livestock grazing on riparian and stream ecosystems. Fisheries 16(1).

Bjornn, T.C. and Reiser, D.W. In Meehan, William (ed). 1991. Influences of forest and rangeland management on salmonid fishes and their habitats.

Bonneville Power Administration. 1997. Watershed management program: final environmental impact statement.

Cochnauer. 1991. Silviculture practices impacts on fish populations - rivers and streams investigations, 3/90-3/91. IDFG.

Columbia Basin Fish and Wildlife Authority (NPPC). 1997. A method and criteria for evaluating the technical merits and feasibility of watershed and habitat projects.

Elmore, W. and Beschta, R.L. 1987. Riparian areas: perceptions in management. Rangelands 9(6).

Fleischner, T.L. 1994. Ecological costs of livestock grazing in western North America. Conservation Biology 8(3).

Fuller, R.K., Kucera, P.A., and Johnson, D.B. 1985. A biological and physical inventory of the streams within the Nez Perce Reservation. Nez Perce Tribl Fisheries. DOE/BP DE-A179-83BP10068, BPA, Portland.

Idaho Division of Environmental Quality and Idaho Soil Conservation Commission. 1991. Idaho agricultural pollution abatement plan.

Idaho Division of Environmental Quality and U.S. Environmental Protection Agency. 1997. Idaho TMDL development schedule: EPA review and evaluation.

Kauffman and Kruege. 1984. Impacts from Livestock grazing. Journal of Range Management 37(5).

Kucera, P.A. and Johnson, D.B. (1986) A biological and physical inventory of the streams within the Nez Perce Reservation. DOE/BP DE-AI79-83BP10068.

Murphy and Metsker. 1962. Inventory of Idaho streams containing adadromous fish and steelhead with recommendations for improving. IDFG.

Nez Perce County Soil and Water Conservation District. 1995. Big Canyon water quality project: final planning report.

Nez Perce Tribe and Idaho Department of Fish and Game. 1990. Clearwater River subbasin salmon and steelhead production plan. BPA contract.

Northwest Power Planning Council. 1994. Columbia River Basin Fish and Wildlife Program.

U.S. Natural Resources Conservation Service (USDA). 1996. Field office technical guide, volume IV.

Section 8. Relationships to other projects

As discussed elsewhere in this document, the proposed project is a part of the Clearwater Subbasin Focus Program which is co-coordinated on behalf of Idaho State by the Soil Conservation Commission and on behalf of the Nez Perce Tribe by Tribal Fisheries. On the ground projects are derived from the coordination efforts of this program.

Within the subbasin approximately 34% of the lands are privately owned, generally located at lower elevations where the geomorphology is more conducive to agriculture and urban development. These areas are directly

affected by land management actions and constitute a significant area of concern relative to fisheries and riparian habitat. Private lands are also not always subject to the same types of resource management as federal, state, or tribal lands and opportunities for habitat protection, restoration, or enhancement might not be advocated with the same vigor. One goal of this proposal is to create opportunities for cooperative agreements that might protect, restore, or enhance anadromous fish habitat through coordinated resource efforts.

Projects associated with the proposed Nichols Canyon Creek subwatershed project are: Clearwater Focus Watershed Program (projects), BPA Project 9607700; BPA Project 9608600 (Coordination - Idaho Soil Conservation Commission); and BPA Project 970600 (Coordination - Nez Perce Tribal Fisheries). Other ongoing projects related to the proposed project are: BPA Project 9303501 (Red River Restoration - Idaho County Soil and Water Conservation District) and BPA Project 9607701 (McComas Meadows - USFS)

Section 9. Key personnel

Lynn Rassmussen, Natural Resources Conservation Service
District Conservationist (1FTE)

Education:

M.S. Soil Science and Water Quality, University of Idaho,1997
M.S. Crop Science, University of Idaho, 1989

Associations:

Soil and Water Conservation Society; Agronomy Society of America; and International Erosion Control Association.

Employment History-Natural Resources Conservation Service (USDA):

District Conservationist 2 years, Lewiston , ID
Watershed Enhancement Program 2.5 years, Moscow, ID
Conservationist, 5 years, Moscow, ID

Completed Projects Relative to the Proposed Project:

60 Agricultural conservation contracts; 17 stream bank and fisheries stabilization project documents; Assessment and evaluation of BMPs for fisheries improvement/protection effectiveness; structural design 900 plans; Various responsibilities for 9 watershed improvement planning documents.

Cheryl Hart, Nez Perce Soil and Water Conservation District
Administrative Assistant/Public Information/Education Specialist (1FTE)

Employment History:

1991-Present: Nez Perce SWCD, Administratiave Assistant and Public Information/Education Specialist. Administer payments to landowners for state agriculture contracts; Perform accounting and administrative functions for all SWCD programs, including financial statements and tax reporting obligations; Coordinate monthly SWCD Board meetings and all public meetings; Write, publish, and distribute 16 newsletters per year; Responsible for reporting obligations to Idaho Division of Environmental Quality, the Idaho Soil Conservation Commission, and U.S. Environmental Protection Agency; Prepare and present public information and educational presentations and workshops; Assist ISCC and NRCS staff.

Janet Hohle, Idaho Soil Conservation Commission
Clearwater Subbasin Focus Program Co-coordinator (1 FTE)

Education

Institution	Location	Attendance	Major	Degrees
Washington State University	Pullman, WA	6/92-8/94	Education	Ed.M
University of Idaho	Moscow, ID	1-6/92; 5/94	Education	n/a
University of Washington	Seattle, WA	1/77 - 8/78	Geology	B.S.
University of Iowa	Iowa City, IA	1971-1975 (52 hrs)	General	n/a

Certificates: Idaho: All subjects grades 1-8; Washington: Elementary education grades K-8 ; Earth Science Endorsement grades 4-12.

Professional Organizations: National Council Teachers of Mathematics; Phi Delta Kappa; Washington Science Teachers Association; Soil and Water Conservation Society.

Employment History

May, 1997 to Present Clearwater Subbasin Focus Program Co-coordinator Idaho Soil Conservation Commission. Moscow, Idaho. Duties: Analyze programs, laws, policies related to watershed management. Facilitate development of criteria to identify critical fisheries habitat. Develop system to apply criteria to watersheds for project development and administration. Prepare plan documents for watershed habitat work coordination. Give educational presentations and workshops for watershed management and proposal development. Provide assistance to project proponents with proposal development, implementation, monitoring, and assessment.

March, 1996 to May, 1997 Mineral/Aggregate Specialist Oregon State Department of Land Conservation and Development. Salem, Oregon.

1994-1996 Teacher Summer school science teacher-Upward Bound, University of Idaho. Substitute teacher in grades 4-12 in Idaho and Washington school districts.

April, 1985 to November, 1991 Geology Department Director Colville Confederated Tribes. Nespelem, Washington.

April, 1982 to April, 1985 Mineral Analyst Colville Confederated Tribes. Keller, Washington.

January, 1979 to April, 1982 Geologist Colville Confederated Tribes. Nespelem, Washington.

The co-coordinator has extensive professional experience with interdisciplinary resource management, development, and problem solving in areas with multiple jurisdictional issues

associated. During her tenure with Colville Confederated Tribes, the co-coordinator was responsible for competitive federal contracting. Demonstrated expertise includes resource issue coordination, public education, communication, and systems analysis.

Relevant Job Completions: 1) Data base compilations for system planning in the Clearwater River subbasin; 2) Legal interpretation and application of new Oregon State Administrative Rule for Goal 5 (natural) resources; 3) Statewide workshops in Oregon to train county and state personnel on new Goal 5 Rule; 4) Mineral exploration and Development system design and implementation on the Colville Indian Reservation; 5) International mineral marketing campaign for the Colville Tribes Mount Tolman ore body.

Section 10. Information/technology transfer

Public information and education for this project will be provided by the Lewis County SWCD Administrative Assistant/Information and Education Specialist. In addition, information and technology transfer will be coordinated between the SWCD, ISCC, and NRCS. This work will be facilitated through the SWCD and ISCC newsletter, local public meetings, and interagency coordination. As part of the Clearwater Focus Watershed Program, this project will become part of the subbasin data compilation and information transfer system.